

**ATHEROSCLEROTIC PLAQUE MORPHOLOGY IN RESPONSE TO HIGH INTENSITY LIPID LOWERING THERAPY BY MULTIMODALITY IMAGING AMONG WOMEN AND MEN: A YELLOW-II SUB-STUDY**

Poster Contributions

Poster Hall, Hall C

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Session Title: Interventional Cardiology: Intravascular Physiology and Endothelial Function

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**Background:** High intensity statin therapy has been shown to lower coronary atherosclerotic plaque lipid content. It is not yet clear whether men and women respond differently to the statin therapy. We report Optical Coherence Tomography (OCT), Intra-Vascular Ultrasound (IVUS) and Near Infra-Red Spectroscopy (NIRS) findings before and after maximization of statin therapy.

**Methods:** Eighty-five patients underwent multimodality coronary imaging of an obstructive non-culprit lesion (NCL) followed by high intensity statin therapy (Rosuvastatin 40mg every day) for 8-12 weeks. At the end of this period, repeat multimodality imaging of NCL was performed. Transcriptomic changes were characterized via microarray analysis of peripheral blood mononuclear cells.

**Results:** At 8-12 weeks follow up, both women (n=27) and men (n=58) had significant but similar decrease in total cholesterol ( $-44.0 \pm 41.1$  vs  $-35.8 \pm 42.0$  mg/dl,  $p=0.436$ ), LDL cholesterol ( $-41.2 \pm 36.9$  vs  $-34.1 \pm 37.2$  mg/dl,  $p=0.350$ ), apolipoprotein B levels ( $-22.6 \pm 20.8$  vs  $-21.8 \pm 24.7$  mg/dl,  $p=0.754$ ) and high sensitivity C-reactive protein ( $-1.5 \pm 4.6$  vs  $-0.4 \pm 4.4$ ,  $p=0.414$ ). Change in minimum cap thickness ( $14.2 \pm 18.0$  in women vs  $6.9 \pm 16.3$  in men,  $p=0.101$ ) and macrophage length ( $-1.3 \pm 2.4$  in women vs  $-1.1 \pm 2.6$  in men,  $p=0.612$ ) were also significant without significant difference between 2 genders. Both groups showed increase in cholesterol efflux capacity (CEC) ( $0.04 \pm 0.07$  in women vs  $0.03 \pm 0.08$  in men,  $p=0.795$ ) with no significant intergroup difference. Six genes (DHCR24, ABCA1, LDLR, FADS1, SQLE, ABCG1) had unique expression pattern in males, and one gene (SFRS3) had a unique differential expression pattern in females (FDR-corrected  $p<0.05$ ) from baseline to follow up. We did not detect differential expression across the sexes themselves.

**Conclusions:** Women and men both demonstrated equally favorable changes in lipid profile and also the plaque morphology at 8-12 weeks follow up in response to high dose statin therapy. Both groups showed increase in CEC which likely contributes to the favorable improvement in plaque morphology. We did not find any difference in gene expression in response to high intensity statin therapy between women and men.